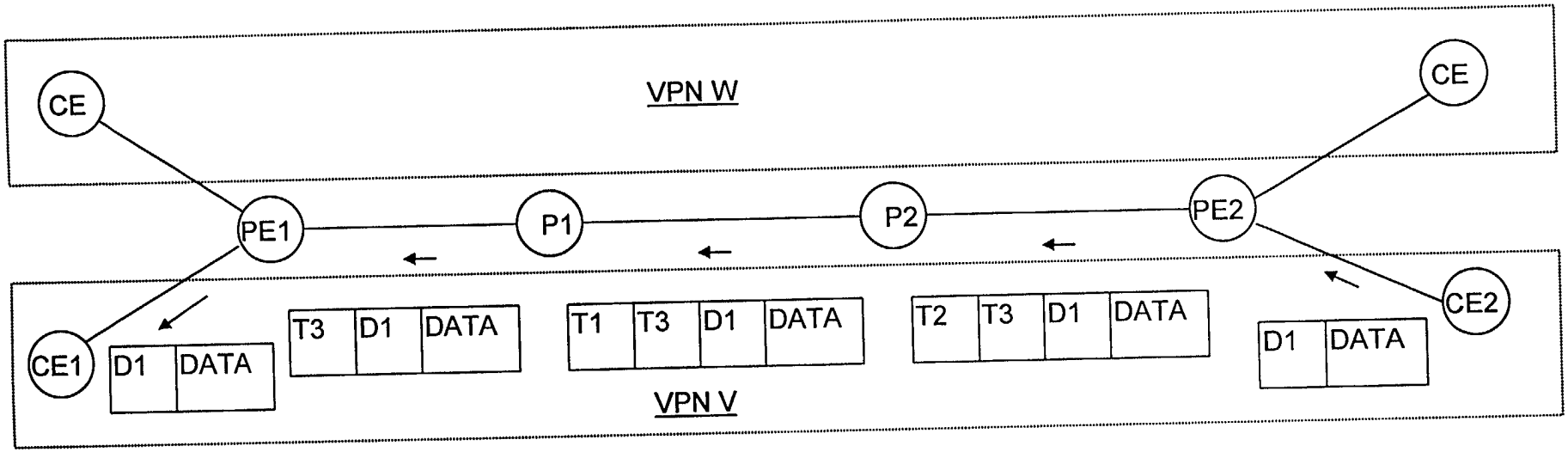

VPN W
CE
CE
PE1
P1
P2
PE2
CE1
CE2
D1
DATA
T3
D1
DATA
T1
T3
D1
DATA
T2
T3
D1
DATA
D1
DATA
VPN V

FIG. 1

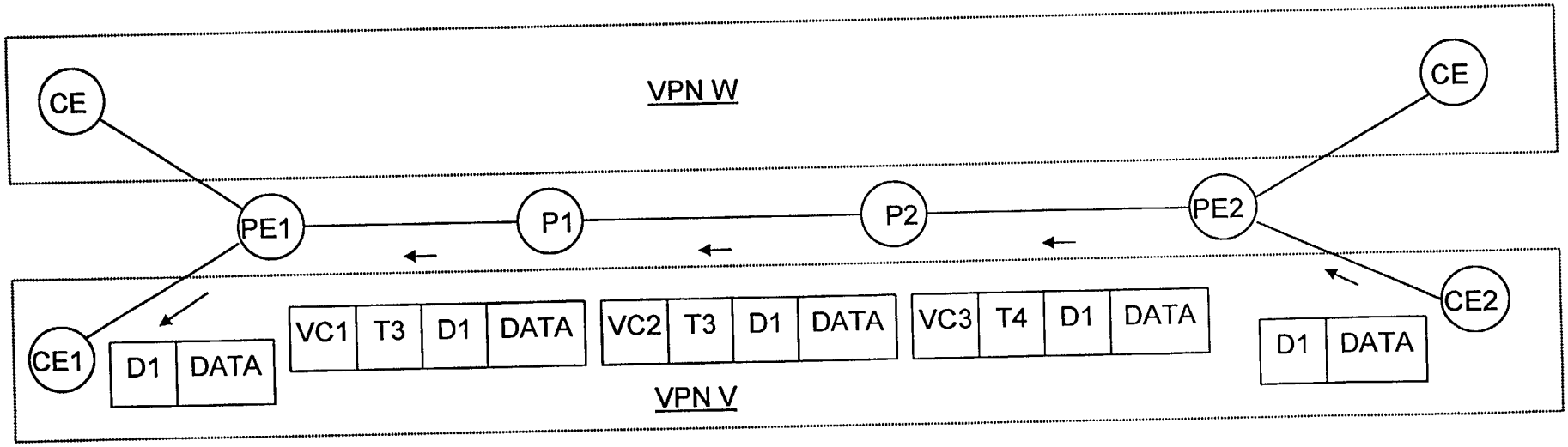

VPN W
CE
CE
PE1
P1
P2
PE2
CE1
CE2
D1
DATA
VC1
T3
D1
DATA
VC2
T3
D1
DATA
VC3
T4
D1
DATA
D1
DATA
VPN V

FIG. 7

TOE20T 97S7000T

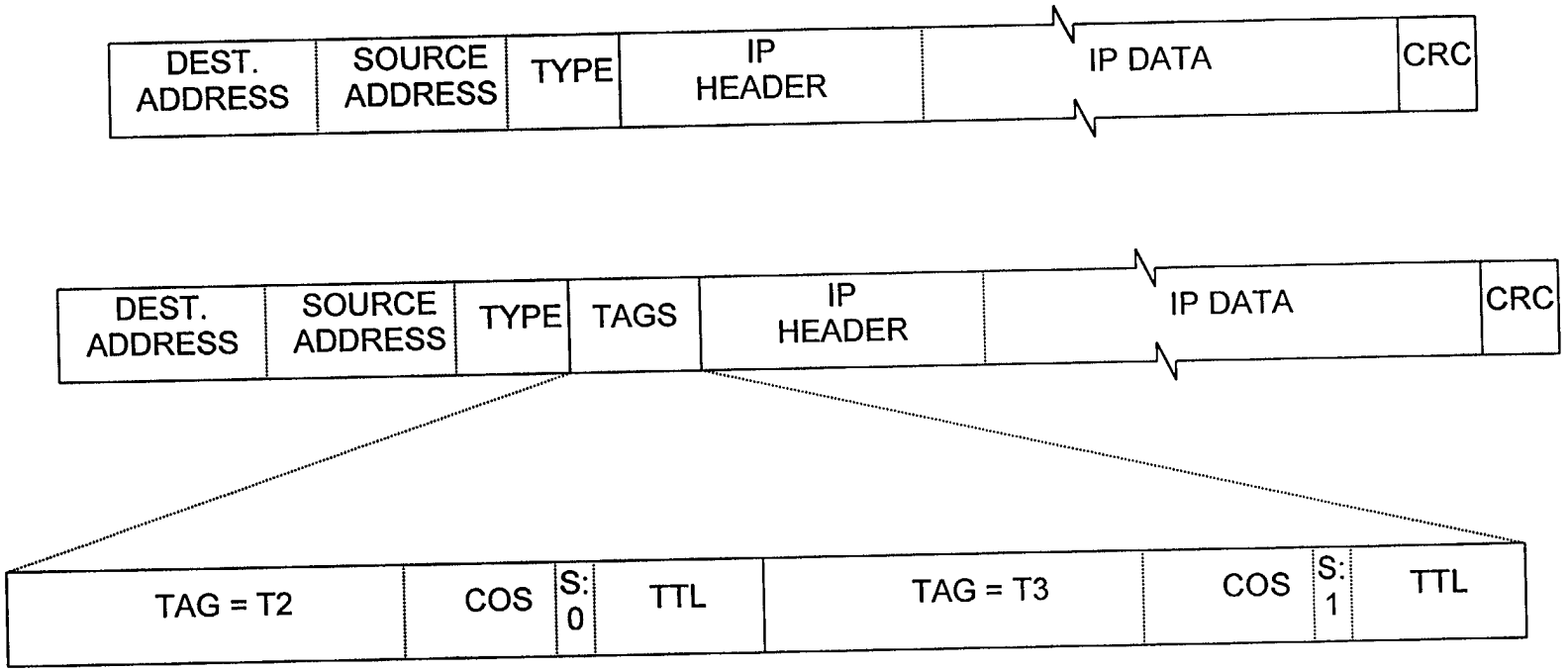


FIG. 2

TOE20T" 9T5T000T

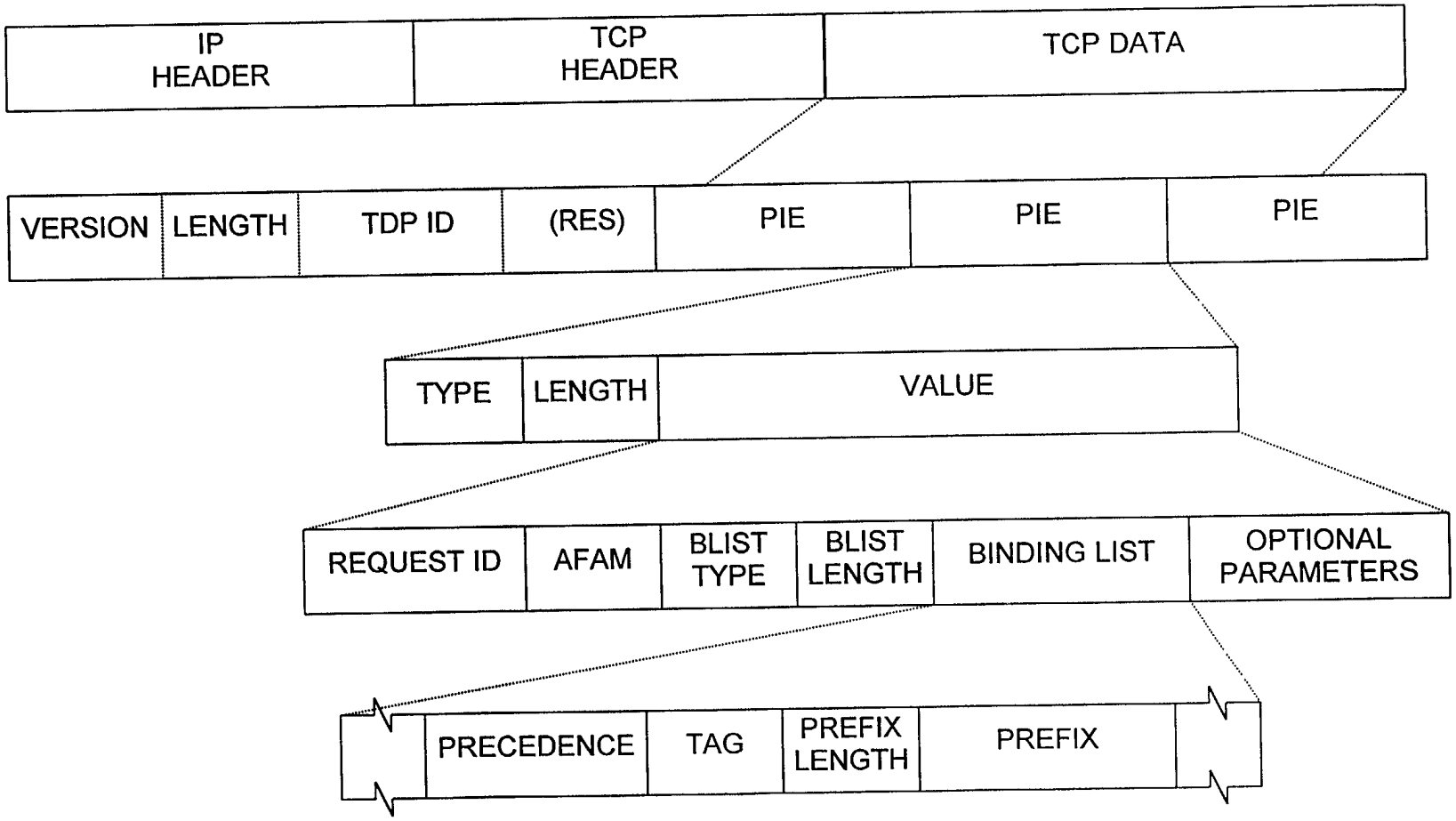


FIG. 3

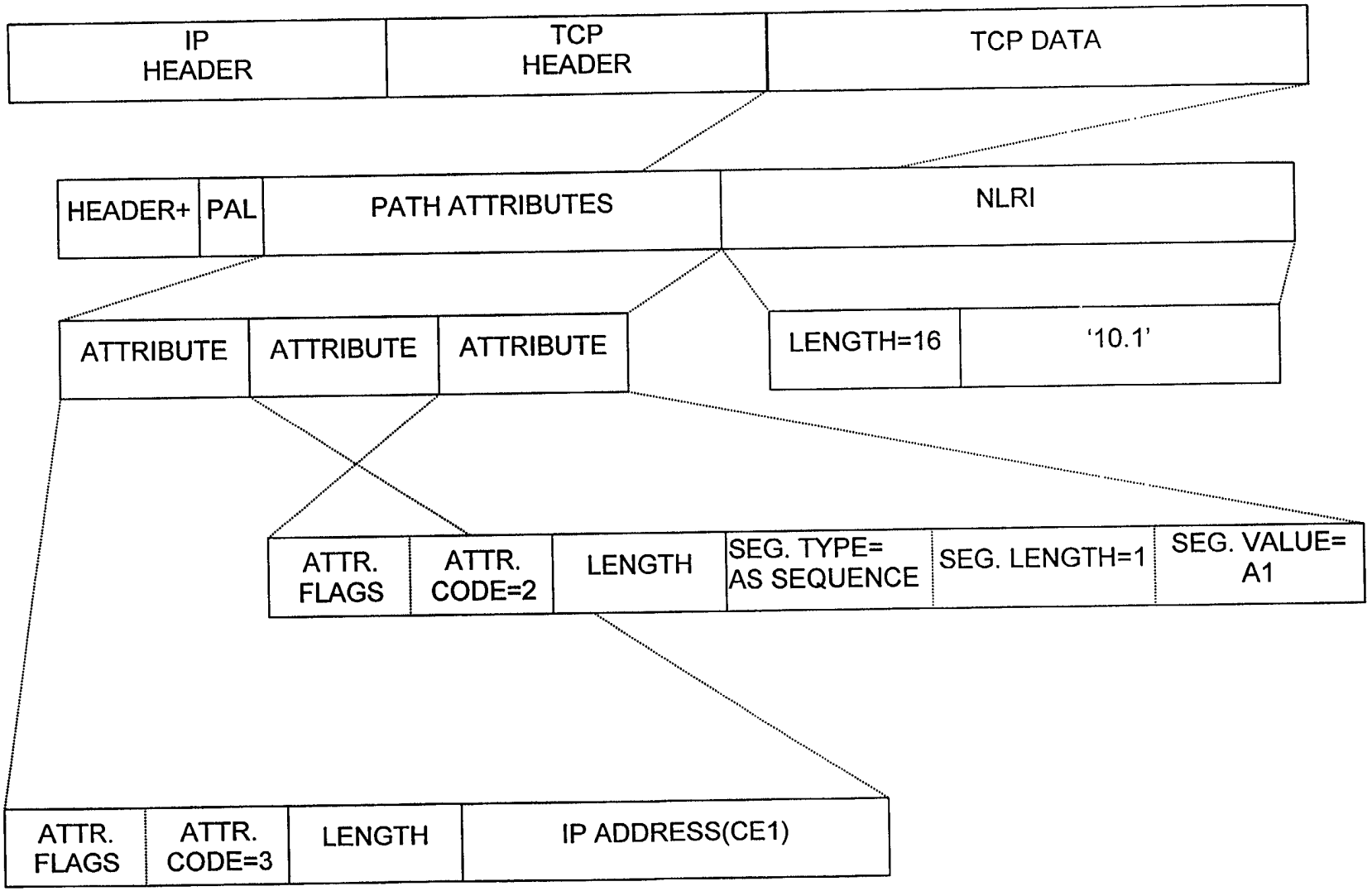

IP HEADER
TCP HEADER
TCP DATA
HEADER+
PAL
PATH ATTRIBUTES
NLRI
ATTRIBUTE
ATTRIBUTE
ATTRIBUTE
LENGTH=16
'10.1'
ATTR. FLAGS
ATTR. CODE=2
LENGTH
SEG. TYPE= AS SEQUENCE
SEG. LENGTH=1
SEG. VALUE= A1
ATTR. FLAGS
ATTR. CODE=3
LENGTH
IP ADDRESS(CE1)

FIG. 4

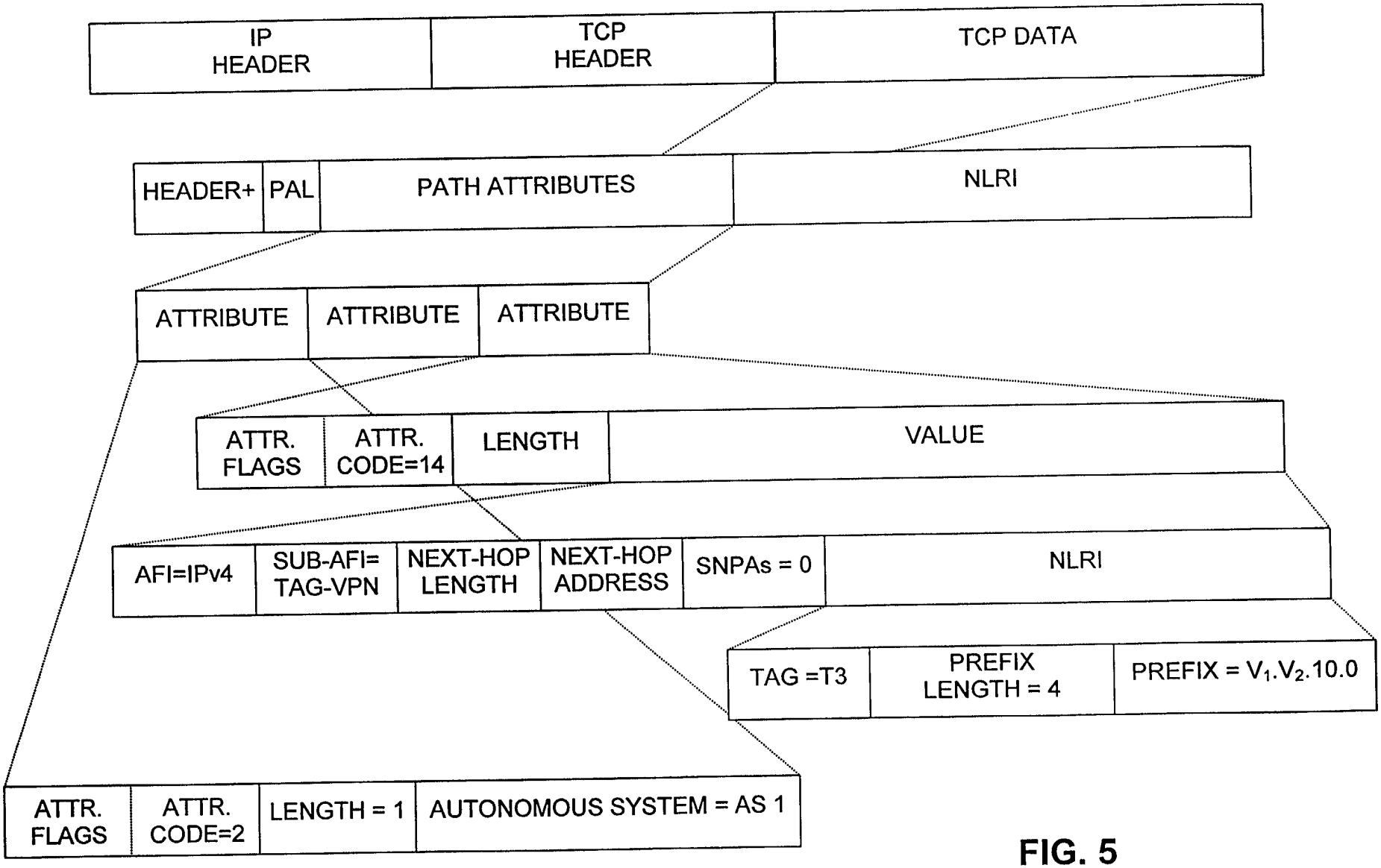

IP HEADER
TCP HEADER
TCP DATA
HEADER+
PAL
PATH ATTRIBUTES
NLRI
ATTRIBUTE
ATTRIBUTE
ATTRIBUTE
ATTR. FLAGS
ATTR. CODE=14
LENGTH
VALUE
AFI=IPv4
SUB-AFI= TAG-VPN
NEXT-HOP LENGTH
NEXT-HOP ADDRESS
SNPAs = 0
NLRI
TAG =T3
PREFIX LENGTH = 4
PREFIX = V1.V2.10.0
ATTR. FLAGS
ATTR. CODE=2
LENGTH = 1
AUTONOMOUS SYSTEM = AS 1

FIG. 5

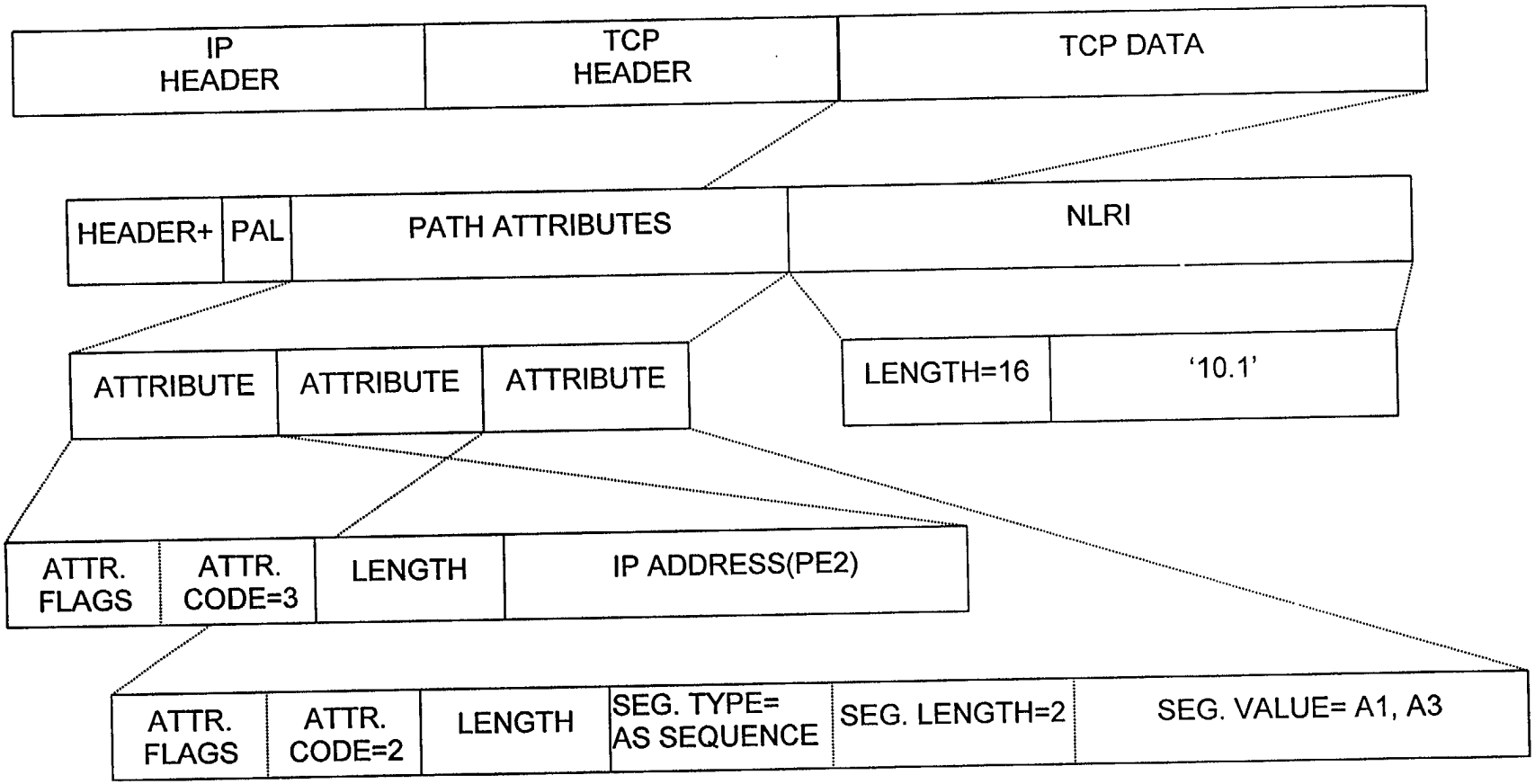

IP HEADER
TCP HEADER
TCP DATA
HEADER+
PAL
PATH ATTRIBUTES
NLRI
ATTRIBUTE
ATTRIBUTE
ATTRIBUTE
LENGTH=16
'10.1'
ATTR. FLAGS
ATTR. CODE=3
LENGTH
IP ADDRESS(PE2)
ATTR. FLAGS
ATTR. CODE=2
LENGTH
SEG. TYPE= AS SEQUENCE
SEG. LENGTH=2
SEG. VALUE= A1, A3

FIG. 6

TOE20T" 9TST0001

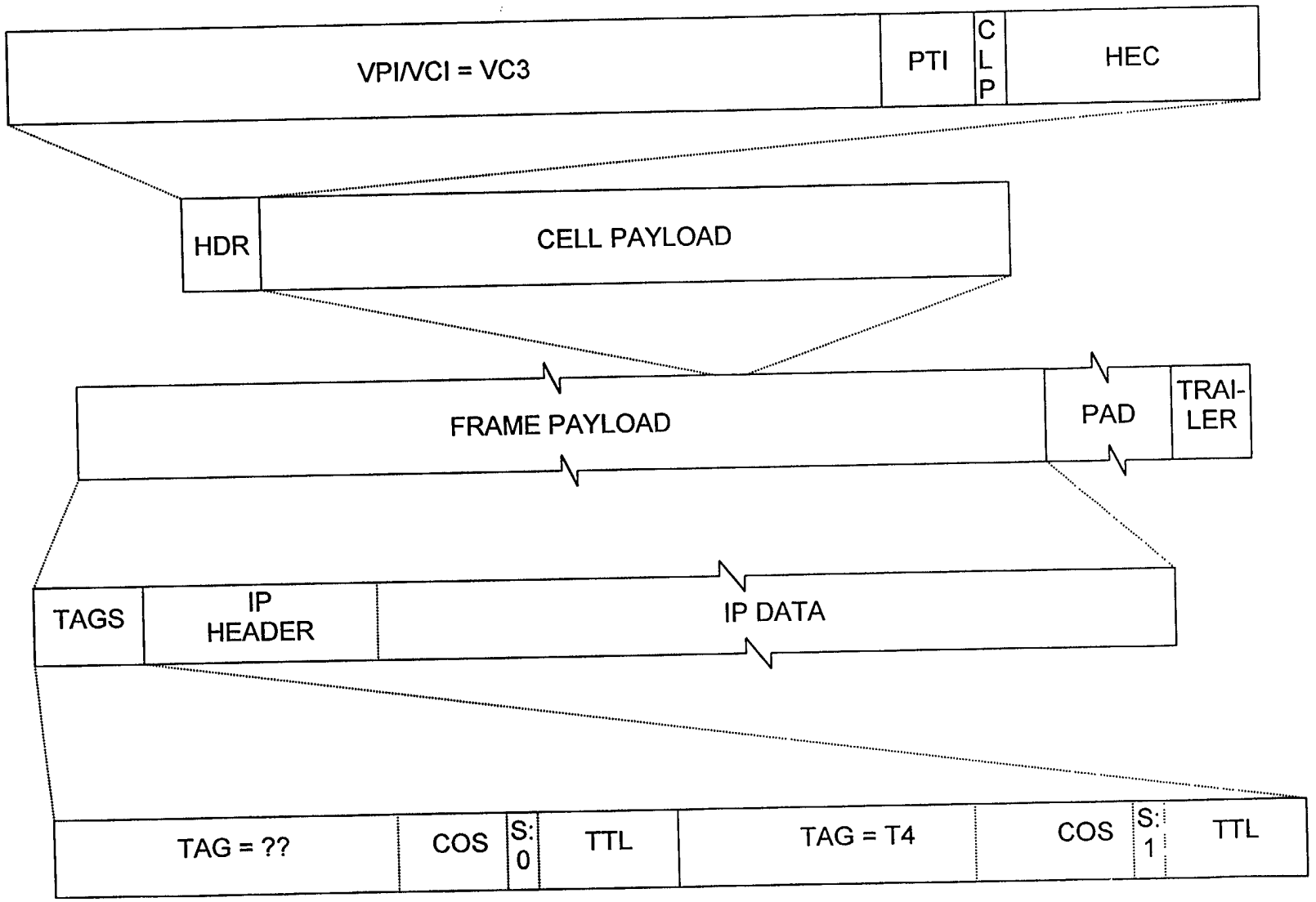


FIG. 8

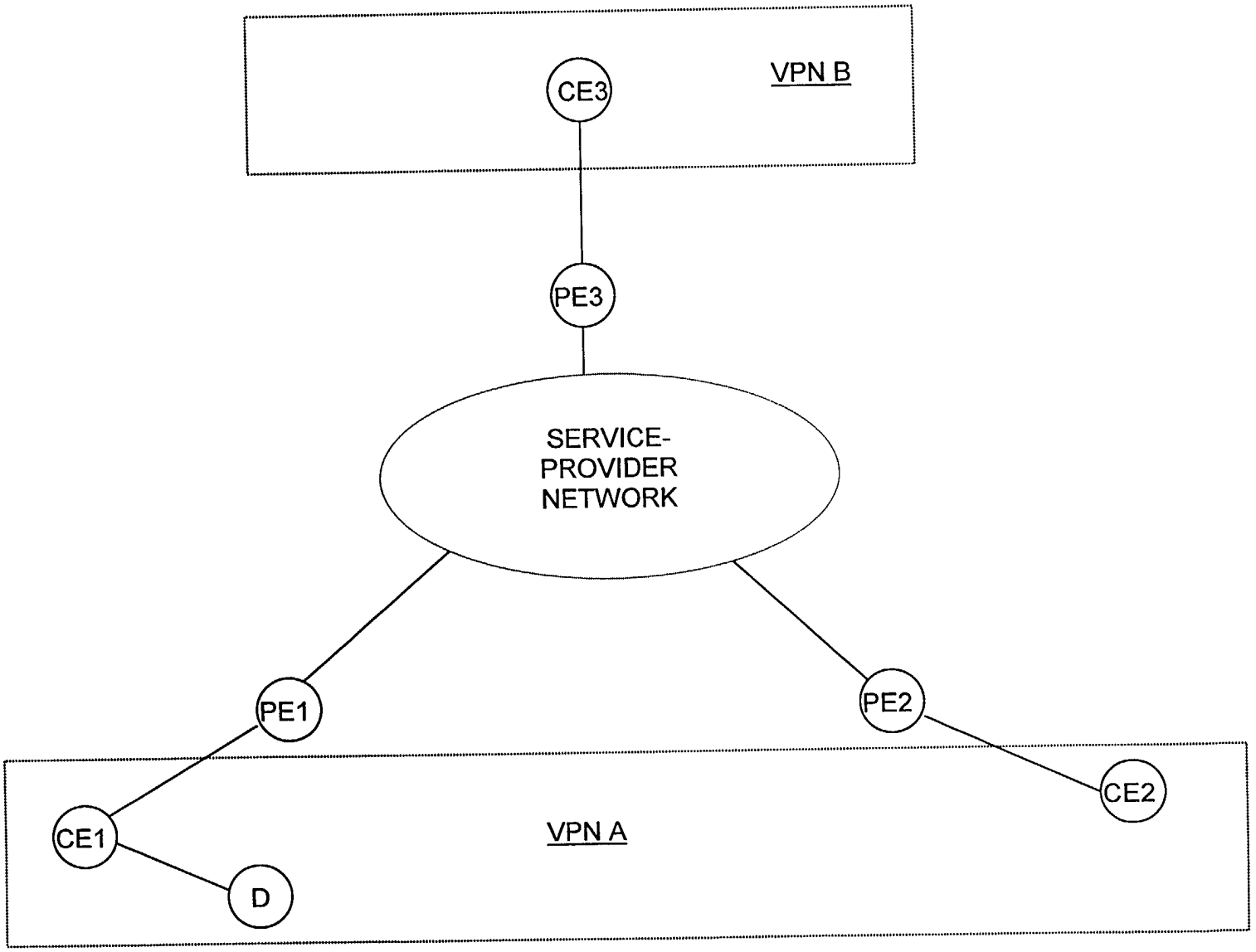
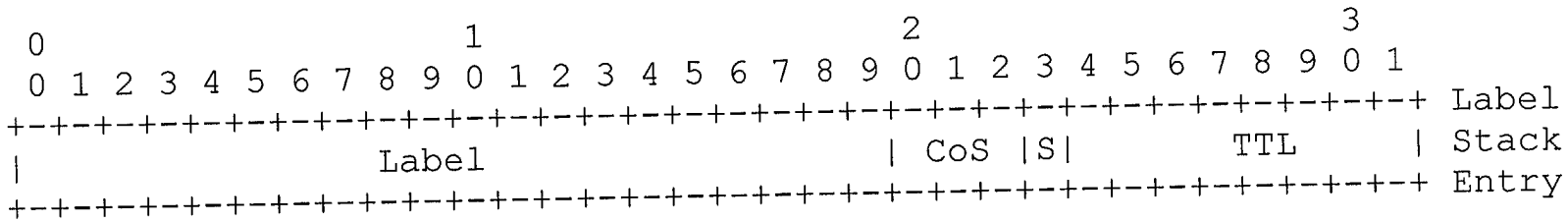


FIG. 9



Label: Label Value, 20 bits
CoS: Class of Service, 3 bits
S: Bottom of Stack, 1 bit
TTL: Time to Live, 8 bits

FIG. 10

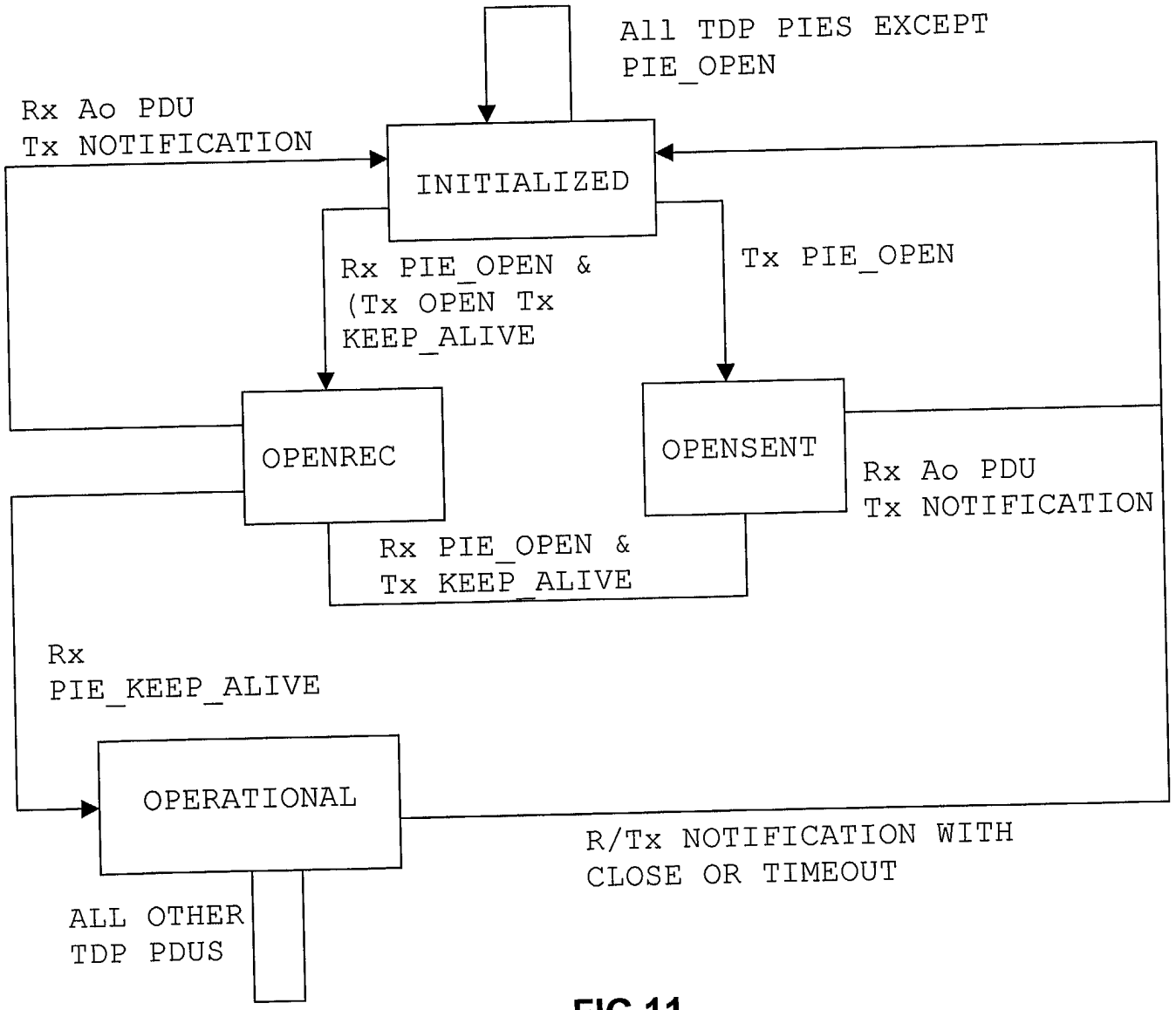

All TDP PIES EXCEPT
PIE_OPEN
Rx Ao PDU
Tx NOTIFICATION
INITIALIZED
Rx PIE_OPEN &
(Tx OPEN Tx
KEEP_ALIVE
Tx PIE_OPEN
OPENREC
OPENSENT
Rx Ao PDU
Tx NOTIFICATION
Rx PIE_OPEN &
Tx KEEP_ALIVE
Rx
PIE_KEEP_ALIVE
OPERATIONAL
R/Tx NOTIFICATION WITH
CLOSE OR TIMEOUT
ALL OTHER
TDP PDUS

FIG.11

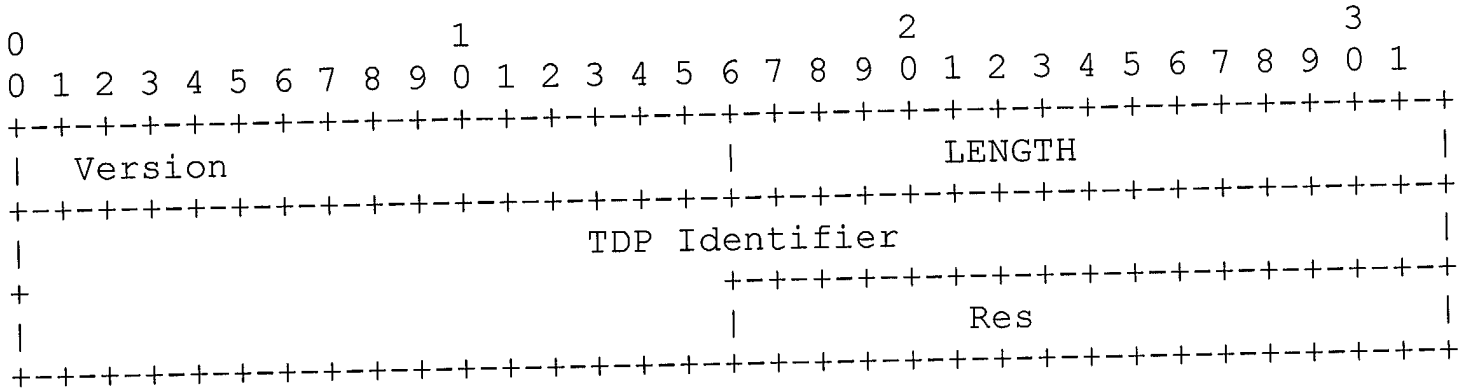

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
Version
LENGTH
TDP Identifier
Res

FIG. 12

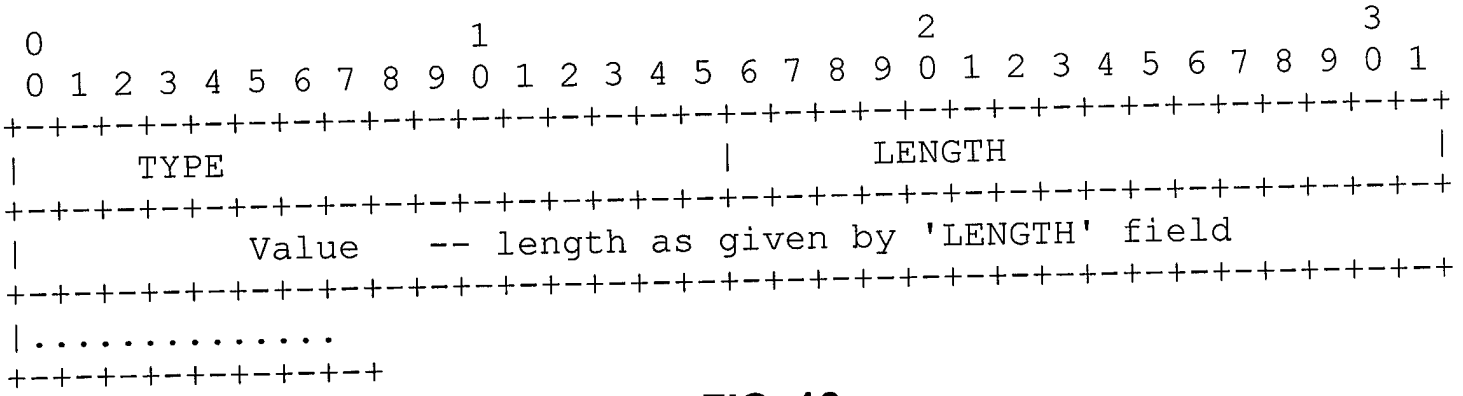

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
TYPE
LENGTH
Value -- length as given by 'LENGTH' field

FIG. 13

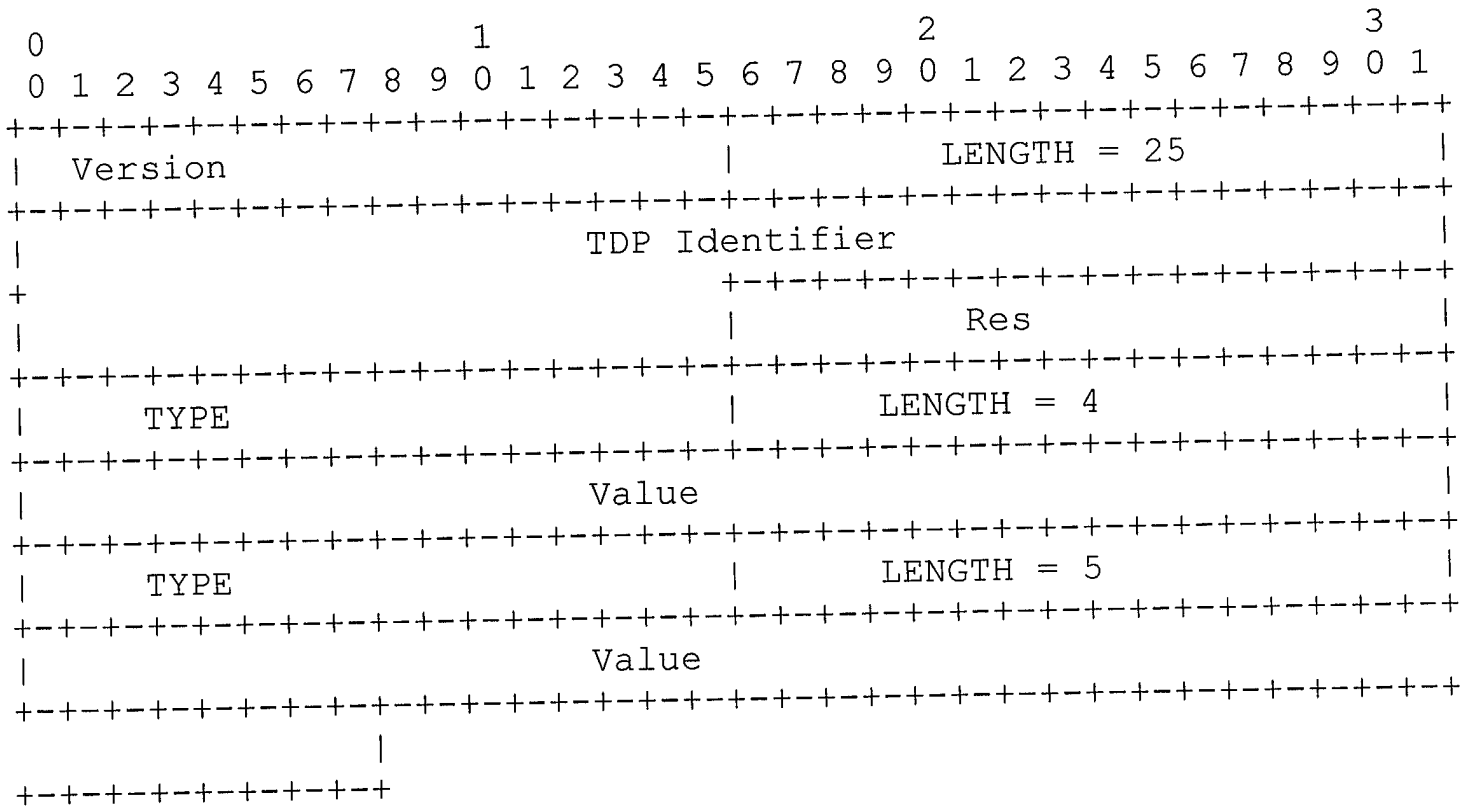

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
Version
LENGTH = 25
TDP Identifier
Res
TYPE
LENGTH = 4
Value
TYPE
LENGTH = 5
Value

FIG. 14

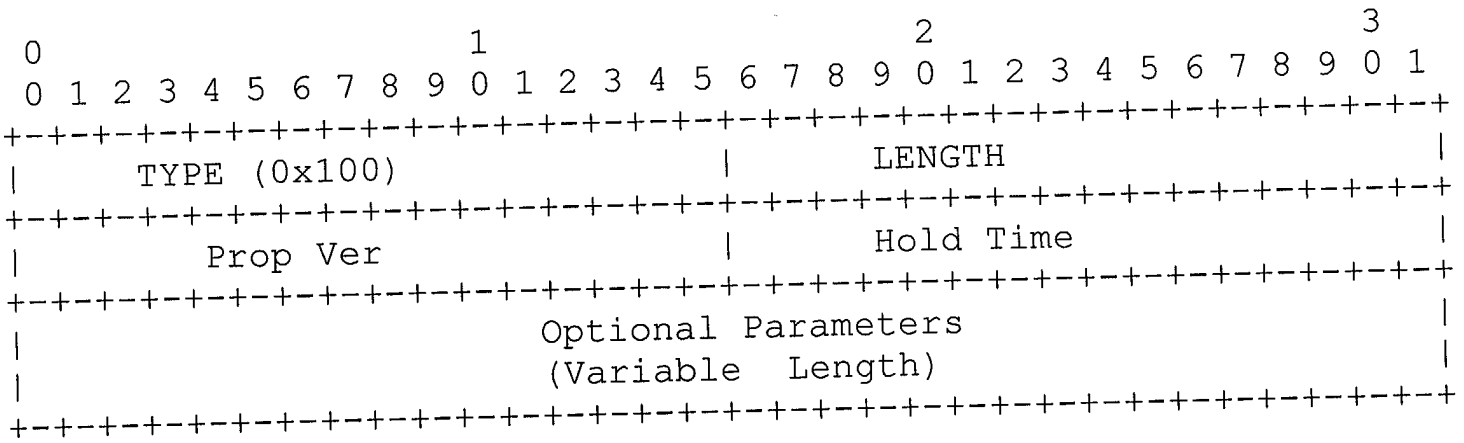


FIG. 15

OPTIONAL PARAMETER	Type	Length	Value
DOWNSTREAM_ON_DEMAND	0x101	0	0
ATM_TAG_RANGE	0x102	Variable	See below
ATM_ENCAPSULATION	0x103	0	0

FIG. 16

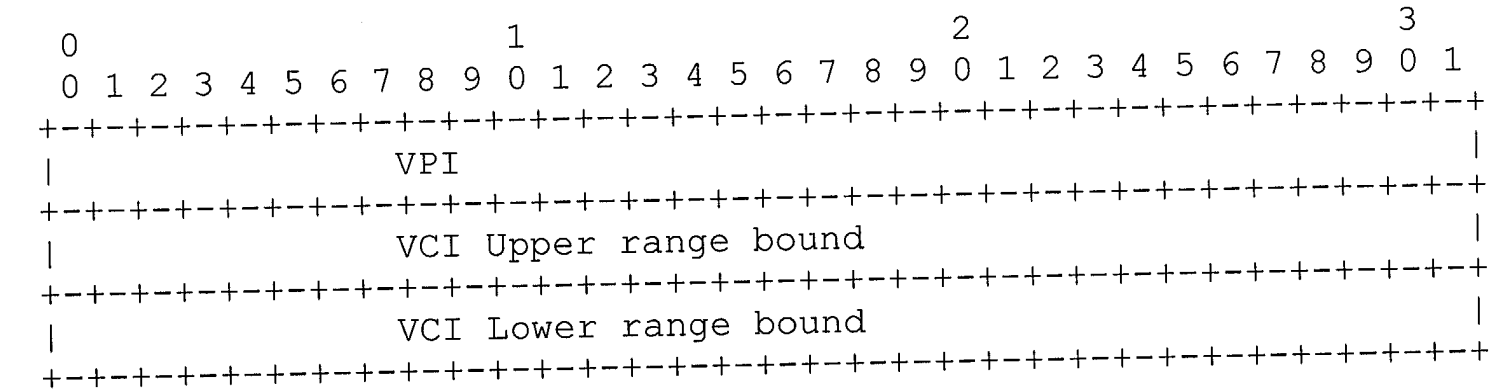

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
VPI
VCI Upper range bound
VCI Lower range bound

FIG. 17

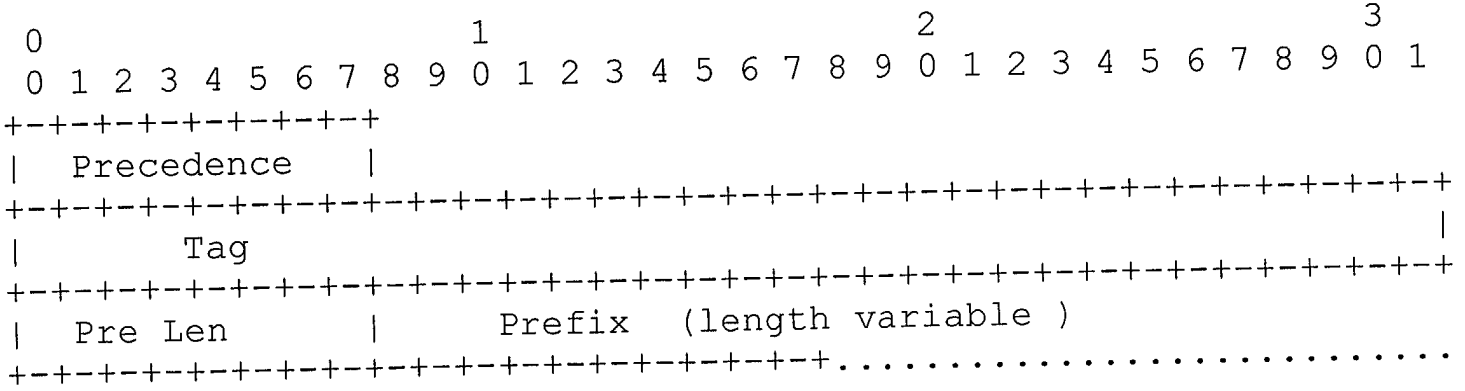

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
Precedence
Tag
Pre Len
Prefix (length variable)

FIG. 18

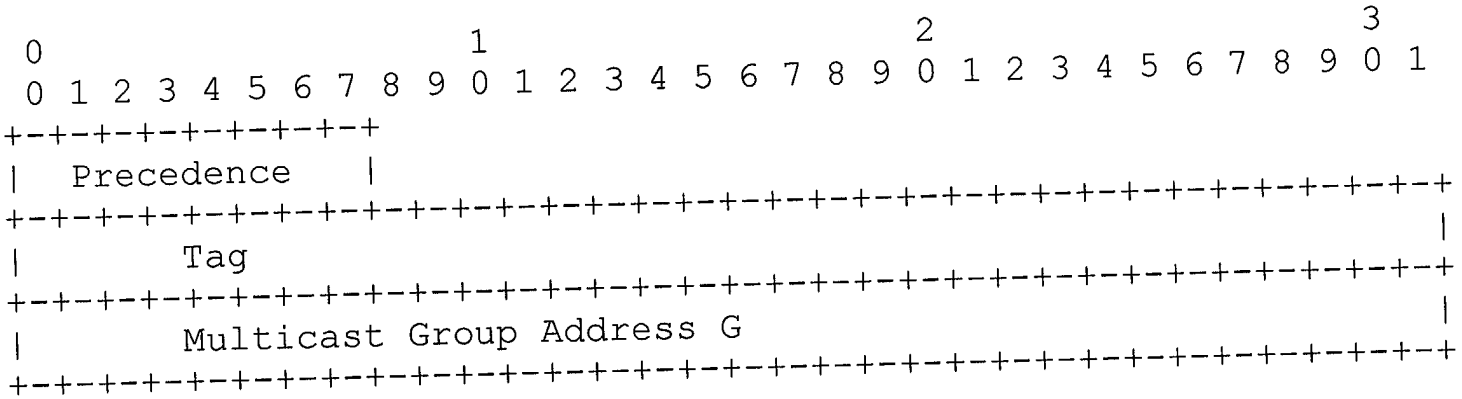

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
Precedence
Tag
Multicast Group Address G

FIG. 19

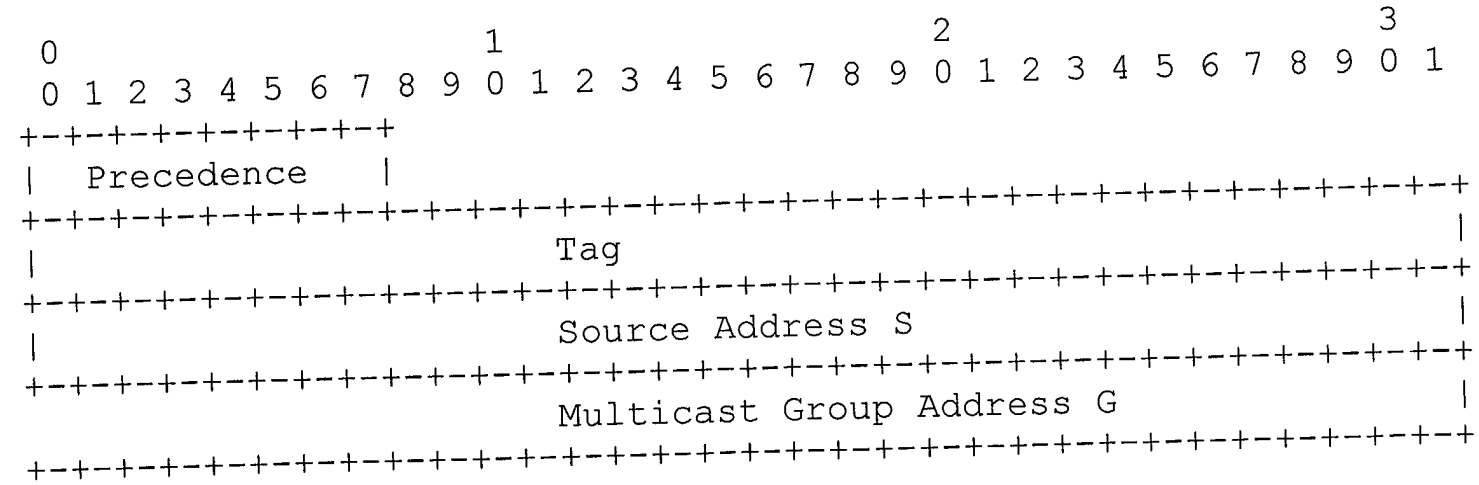

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
Precedence
Tag
Source Address S
Multicast Group Address G

FIG.20

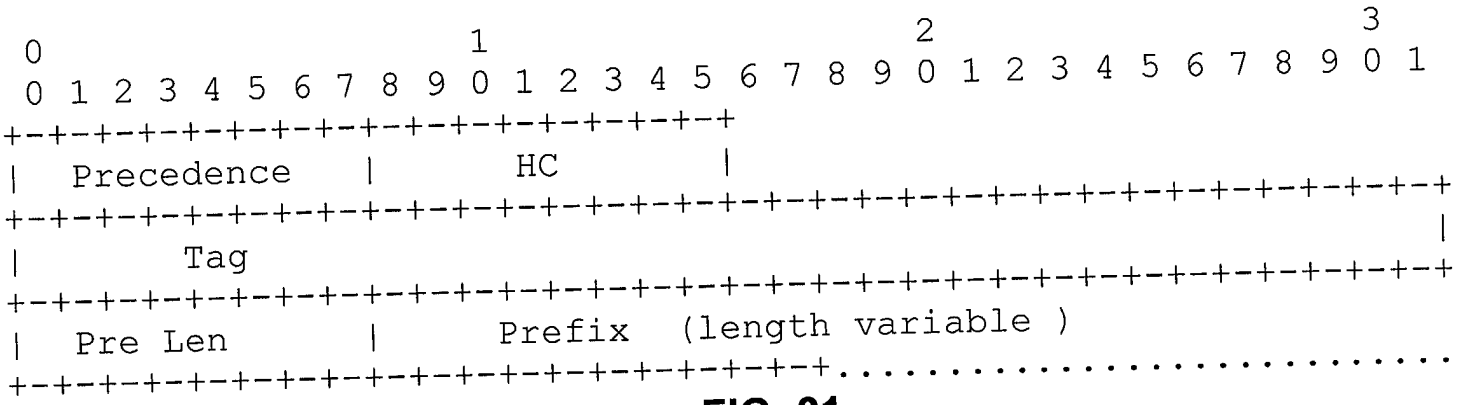

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
Precedence
HC
Tag
Pre Len
Prefix (length variable)

FIG. 21

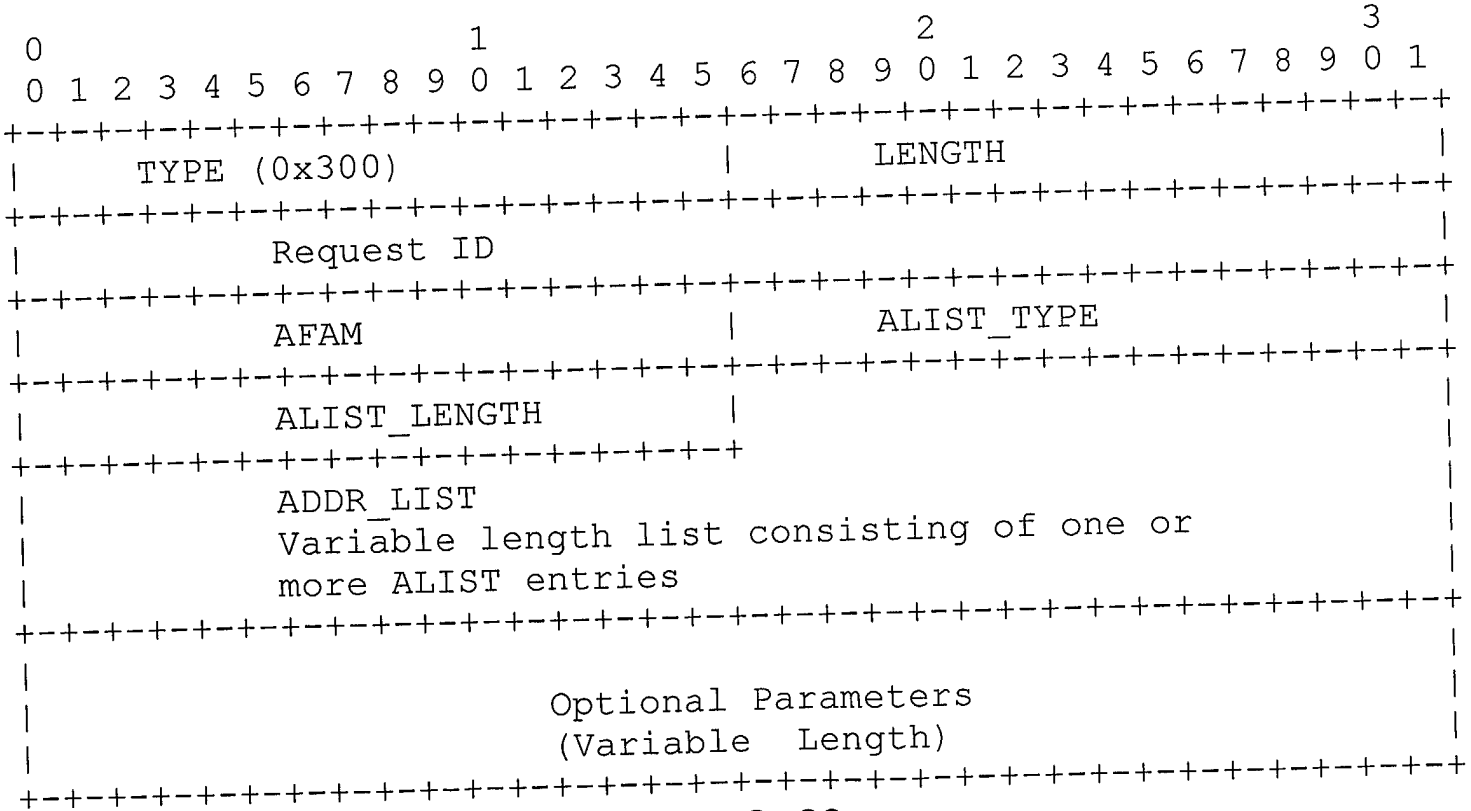

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
TYPE (0x300)
LENGTH
Request ID
AFAM
ALIST_TYPE
ALIST_LENGTH
ADDR_LIST
Variable length list consisting of one or
more ALIST entries
Optional Parameters
(Variable Length)

FIG. 22

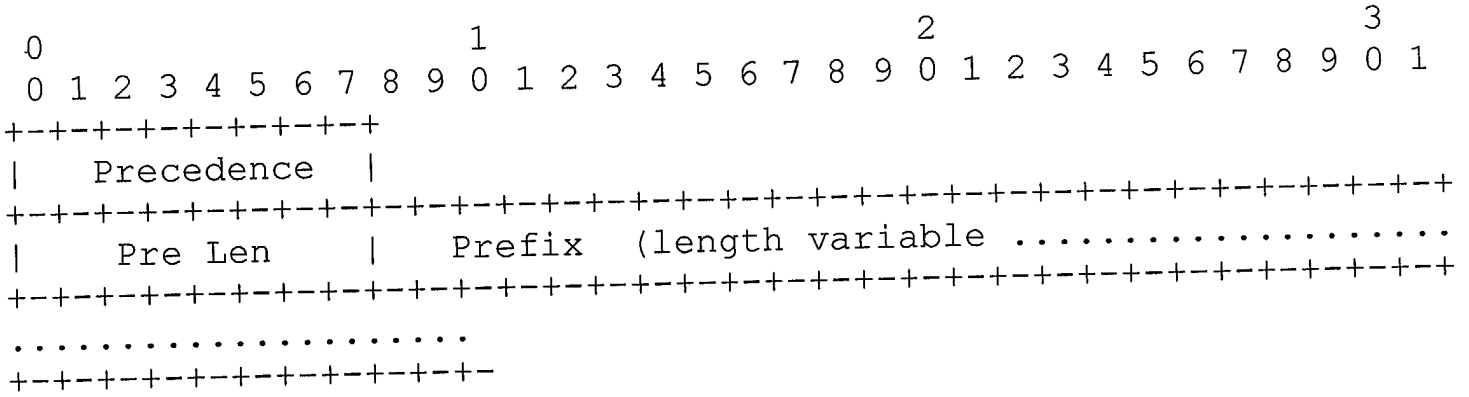

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
Precedence
Pre Len
Prefix (length variable

FIG. 23

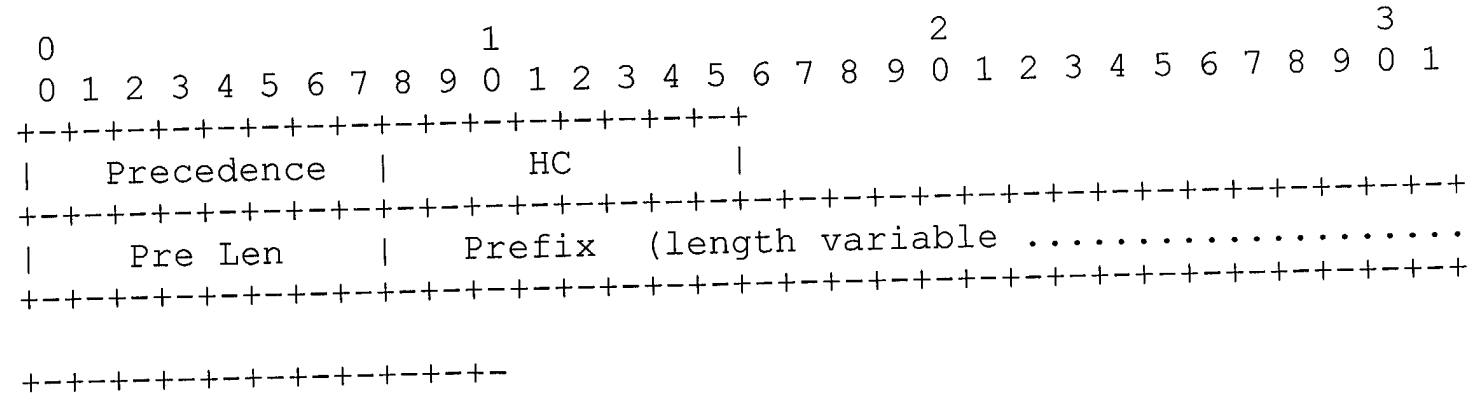

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
Precedence
HC
Pre Len
Prefix (length variable

FIG. 24

STATUS NOTIFICATION	Type	Length	Value
RESOURCE_LIMIT	0x3F0	4	Request ID
RESOURCES	0x3F1	0	0
HOP_COUNT_EQUALLED	0x3F2	Var	See below
NO_ROUTE	0x3F3	Var	See below

FIG. 25

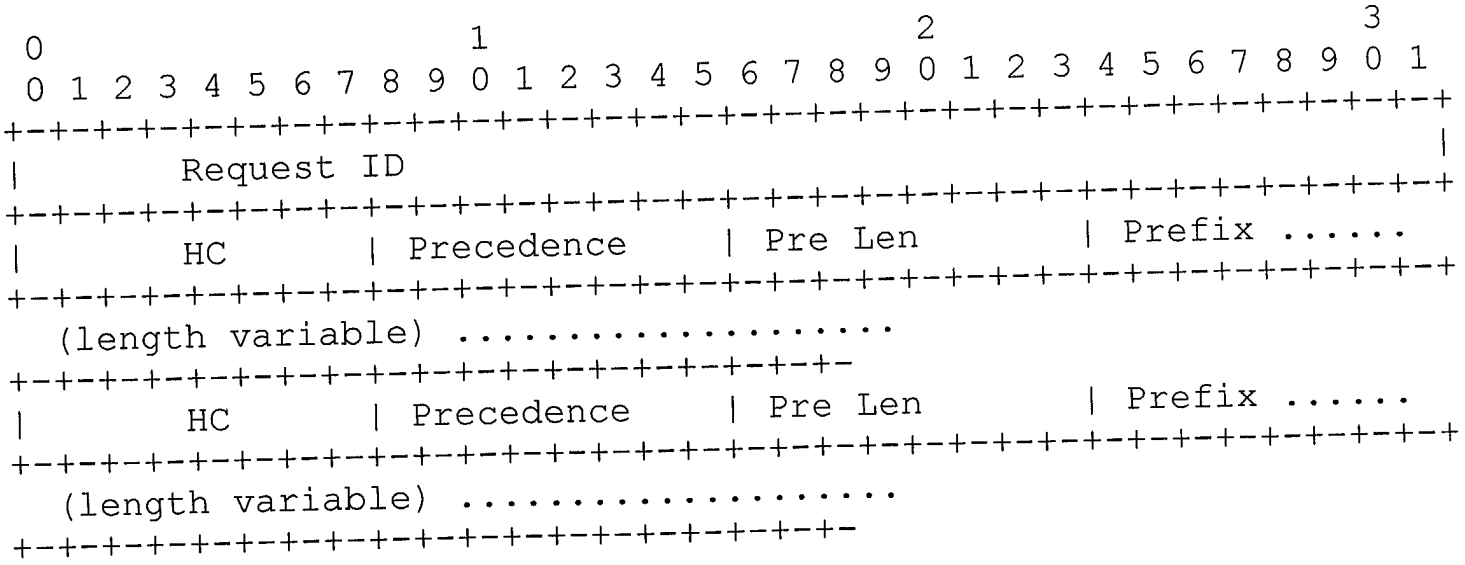


FIG. 26

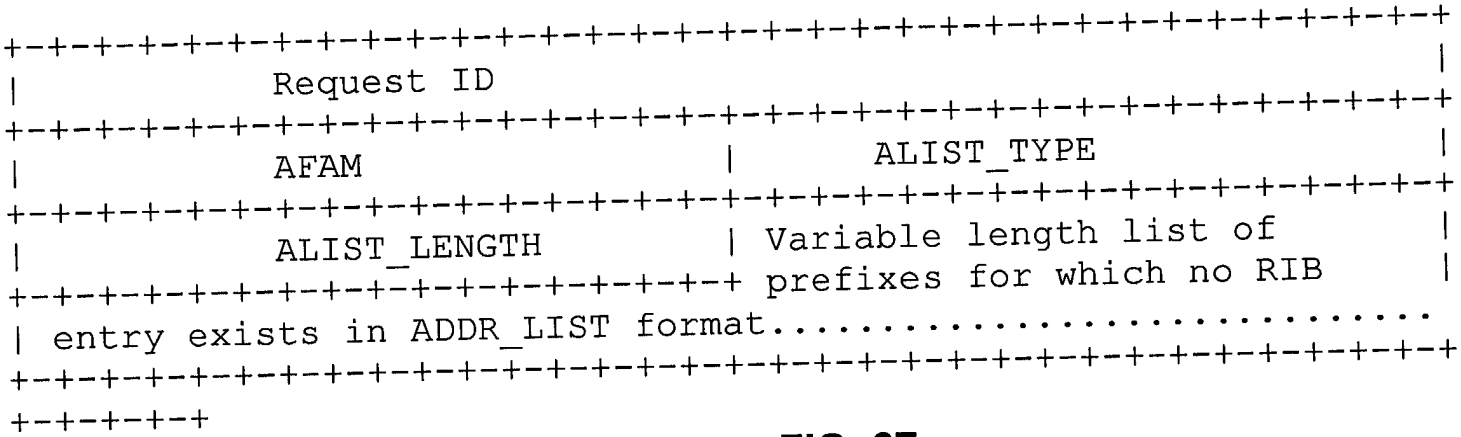

Request ID
AFAM
ALIST_TYPE
ALIST_LENGTH
Variable length list of
prefixes for which no RIB
entry exists in ADDR_LIST format.....

FIG. 27

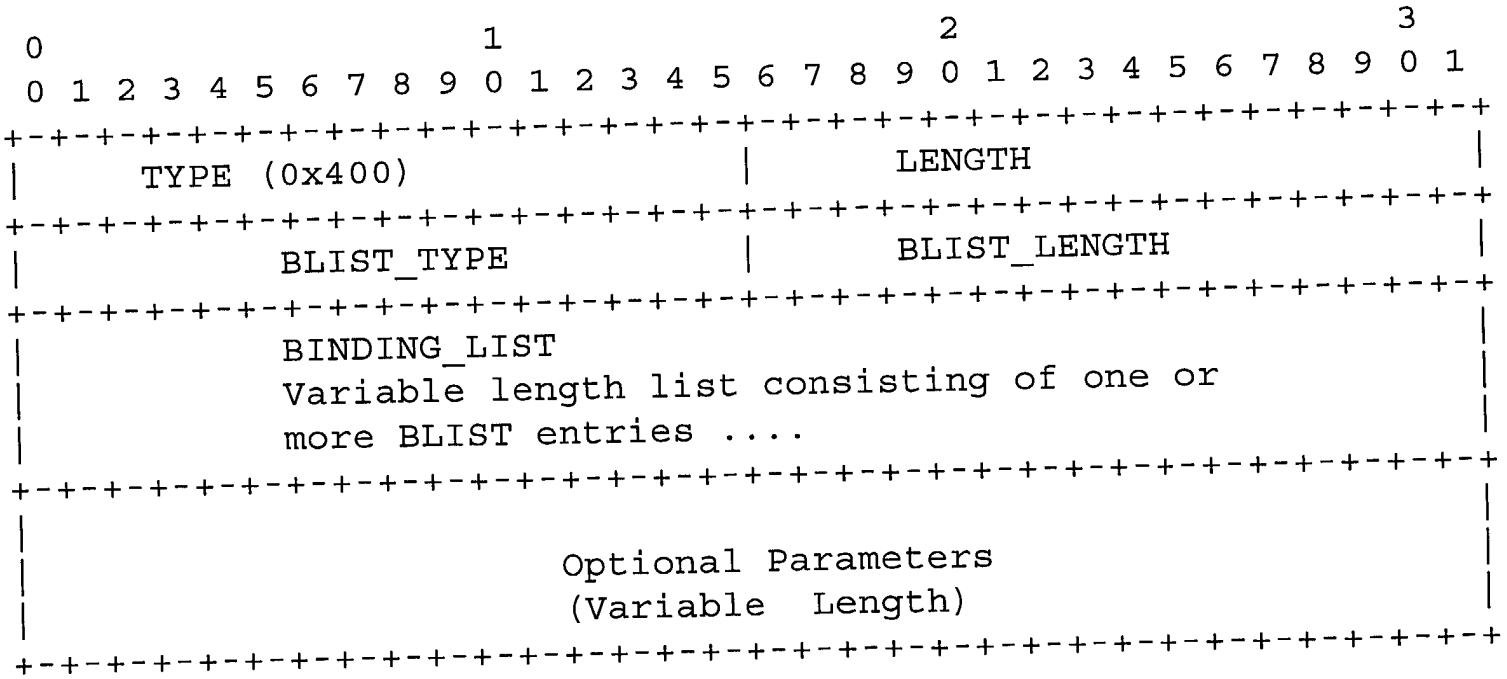

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
TYPE (0x400)
LENGTH
BLIST_TYPE
BLIST_LENGTH
BINDING_LIST
Variable length list consisting of one or
more BLIST entries ....
Optional Parameters
(Variable Length)

FIG. 28

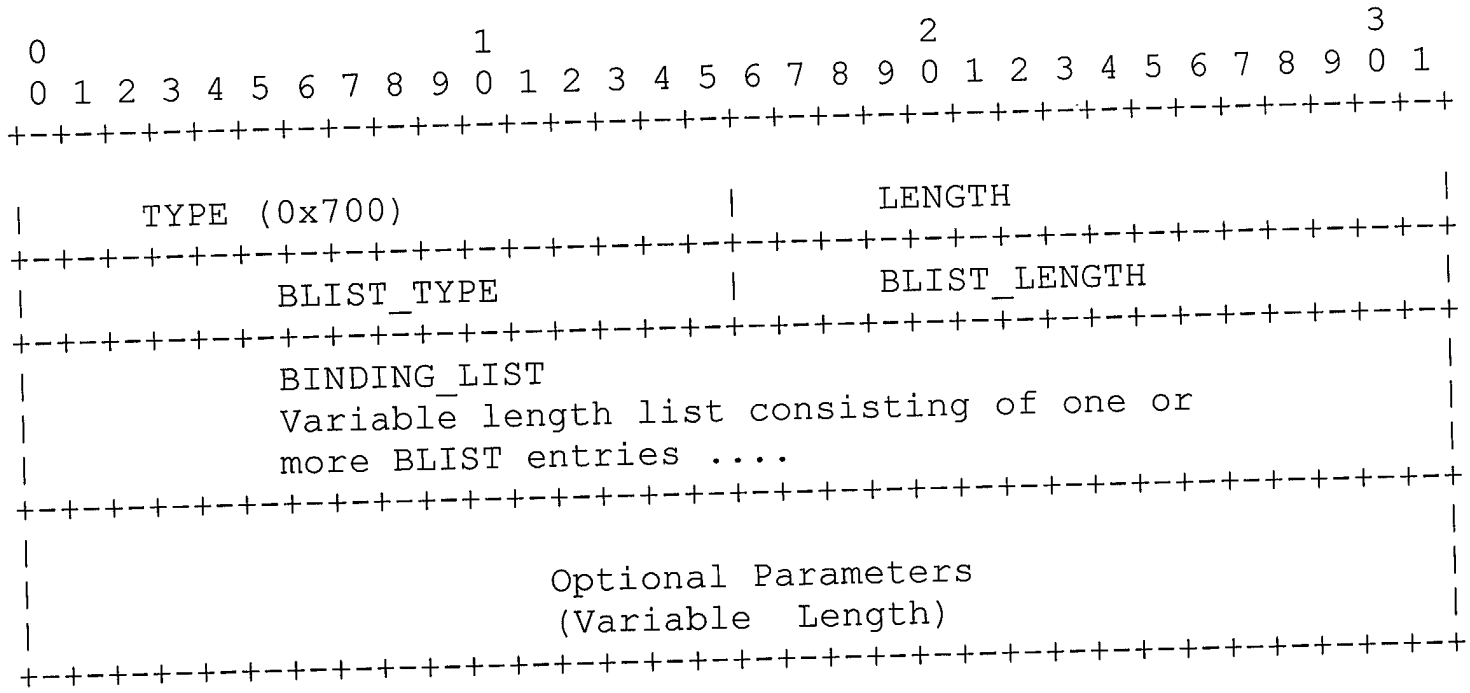

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
TYPE (0x700)
LENGTH
BLIST_TYPE
BLIST_LENGTH
BINDING_LIST
Variable length list consisting of one or
more BLIST entries ....
Optional Parameters
(Variable Length)

FIG. 29

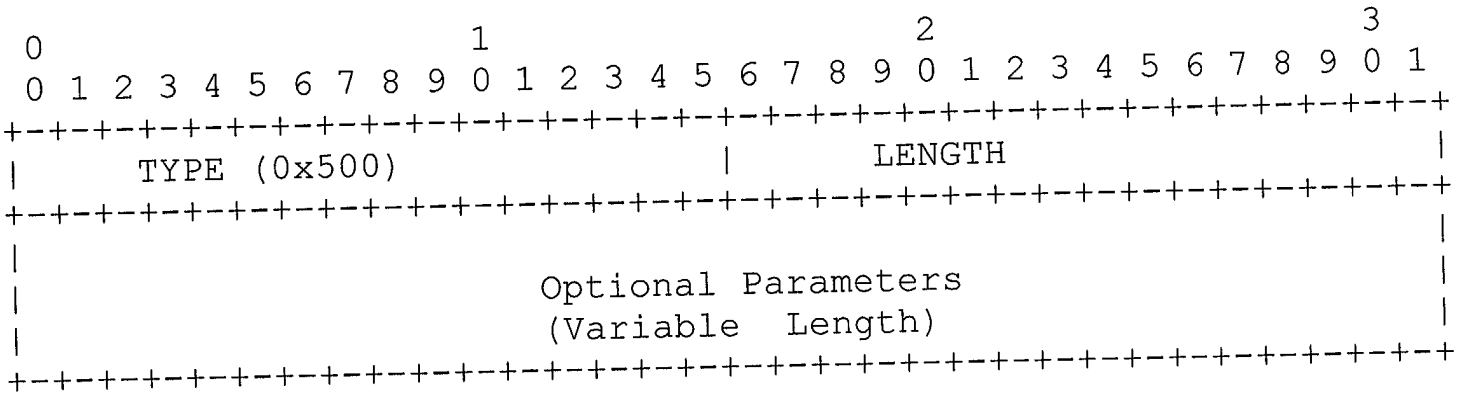

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
TYPE (0x500)
LENGTH
Optional Parameters
(Variable Length)

FIG. 30

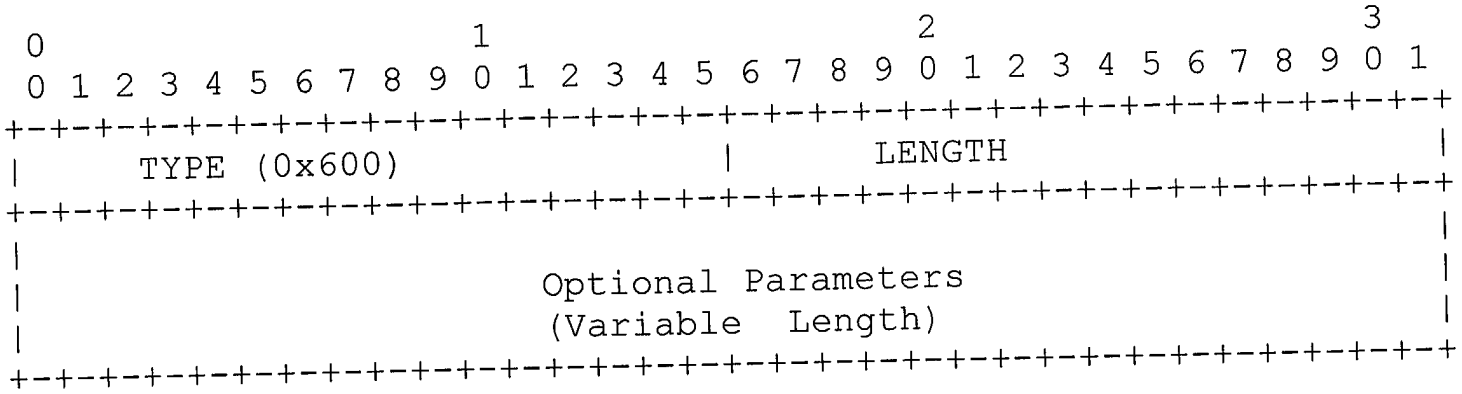

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
TYPE (0x600)
LENGTH
Optional Parameters
(Variable Length)

FIG. 31

Optional Parameter	Type	Length	Value
RETURNED_PDU	0x601	Var	Peer's PDU

FIG. 32

Optional Parameter	Type	Length	Value
CLOSING	0x602	0	0

FIG. 33

Optional Parameter	Type
TDP_OPEN_UNSUPPORTED_VER	0x1F0
TDP_BAD_OPEN	0x1F1
TDP_WRONG_ENCAPS	0x1F2

FIG. 34

Optional Parameter	Type
RESOURCE_LIMIT	0x3F0
RESOURCES	0x3F1
HOP_COUNT_EQUALLED	0x3F2
NO_ROUTE	0x3F3

FIG. 35

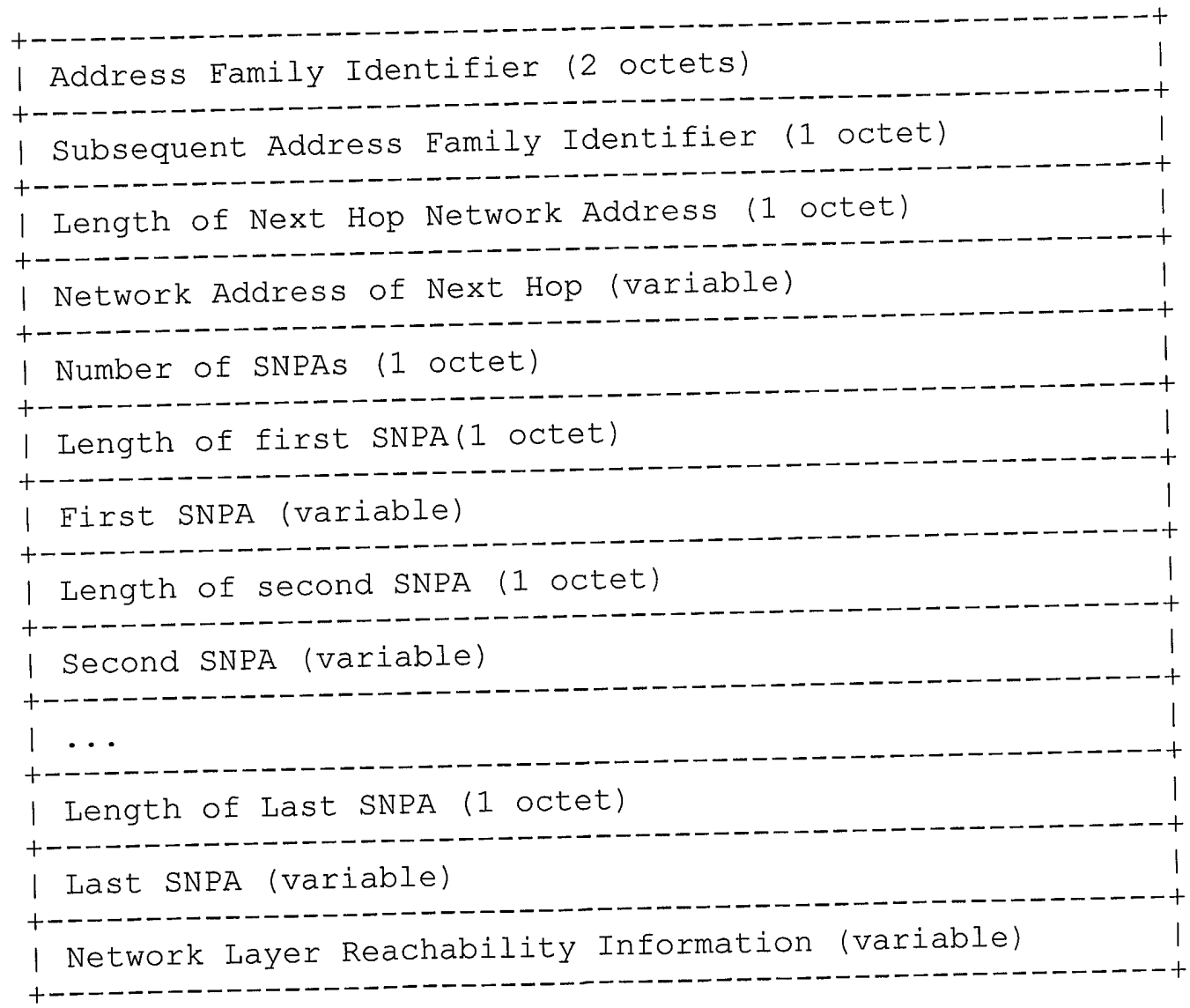

Address Family Identifier (2 octets)
Subsequent Address Family Identifier (1 octet)
Length of Next Hop Network Address (1 octet)
Network Address of Next Hop (variable)
Number of SNPAs (1 octet)
Length of first SNPA(1 octet)
First SNPA (variable)
Length of second SNPA (1 octet)
Second SNPA (variable)
...
Length of Last SNPA (1 octet)
Last SNPA (variable)
Network Layer Reachability Information (variable)

FIG. 36